

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 10 FEB 2005

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Applicant's or agent's file reference	FOR FURTHER ACTION See Form PCT/PEA/416	
International application No. PCT/EP2004/005275	International filing date (day/month/year) 17.05.2004	Priority date (day/month/year) 16.06.2003
International Patent Classification (IPC) or national classification and IPC C11D3/22, C08B15/05		
Applicant UNILEVER PLC et al		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 6 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input checked="" type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand 27.10.2004	Date of completion of this report 10.02.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Richards, M Telephone No. +31 70 340-4267	



INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2004/005275

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-69 as originally filed

Claims, Numbers

1-25 received on 21.12.2004 with letter of 15.12.2004

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
 4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/005275

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-25
	No: Claims	
Inventive step (IS)	Yes: Claims	1-25
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-25
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

and /or

2. Non-written disclosures (Rule 70.9)

see separate sheet

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/EP2004/005275

Item V

The following documents are referred to in this communication:

- D1 : WO 03/014278 A
- D2 : WO 03/020770 A
- D3 : WO 03/020819 A
- D4: WO 03/050144 A
- D5: WO 03/040279 A
- D6: WO 99/36469 A

The term "polymeric textile benefit species" and "second benefit species" are not commonly known in the art.

However for the purposes of search/examination the terms have been construed as silicone type compounds according to the dependent claims.

Novelty (Article 33(2) PCT)

The subject matter of claims 1 - 25 is novel.

D1 - D3, see citations of the international search report, disclose laundry treatment compositions comprising water soluble polysaccharides preferably attached to silicone type species. However D1 - D3 do not disclose water soluble polysaccharides according to present claim 1 additionally comprising a second textile benefit species which is not covalently bonded thereto.

Inventivity (Article 33(3) PCT)

The subject matter of claims 1 - 25 is inventive.

None of the cited art discloses a means of delivery of a benefit agent to laundry according to present claim 1. Furthermore it would not have been obvious to modify the disclosures of D1 - D3 to arrive at the subject matter of claim 1. It follows that the remaining claims are also not obvious.

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/EP2004/005275

Item VI

Certain published documents:

D4 priority date 07.12.2001 filing date 05.12.2002 publication date 19.06.2003

This document may be used to make objections against the patentability of the present application on entry into the regional phase.

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EPO - DG 1

21.12.2004

CLAIMS

1. A water-soluble or dispersible, non-hydrolyzable ⁽⁷⁶⁾ polysaccharide (NHP), having at least one first
5 polymeric textile benefit species bonded thereto by a hydrolytically stable bond and a second textile benefit species which is not covalently bonded thereto.
2. A composition according to claim 1 wherein the first
10 polymeric textile benefit species is a first polymeric textile softening species (FPSS).
3. A composition according to claim 2 wherein the bond
15 between the FPSS and the polysaccharide is such that the decay rate constant (k_d) of the material in an aqueous solution at 0.01 wt% of the material together with 0.1 wt% of anionic surfactant at a temperature of 40°C at a pH of 10.5 is such that $k_d < 10^{-3} \text{ s}^{-1}$.
- 20 4. A composition according to any of claims 1-3 wherein the NHP has a backbone comprising β 1-4 linkages.
5. A composition according to claim 4 wherein the NHP is a
25 poly-glucan, poly-mannan, gluco-mannan or a mixture thereof.
6. A composition according to claim 5 wherein the NHP is a galacto-mannan, xylo-glucan or a mixture thereof.

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7. A composition according to claim 6 wherein the NHP is locust bean gum, tamarind xyloglucan, guar gum or mixture thereof.
- 5 8. A composition according to any of the claims 2-7 wherein first polymeric textile softening species (FPSS) is a silicone.
- 10 9. A composition according to claim 1 wherein the second textile benefit species is a second polymeric textile softening species (SPSS).
10. A composition according to claim 9 wherein the SPSS is a silicone.
- 15 11. A composition according to claim 10 wherein the SPSS has a dynamic viscosity of $>2,500$ mPas.
- 20 12. A composition according to claim 9 wherein the ratio of the NHP with the FPSS bonded thereto to the SPSS is in the range 1:100 to 1:5 parts by weight, preferably 1:20-1:10 parts by weight.
- 25 13. A composition as claimed in claim 10 comprising NHP with FPSS bonded thereto, and optionally SPSS, as the dispersed phase of an emulsion.
- 30 14. A composition as claimed in claim 13 further comprising an emulsifying agent.

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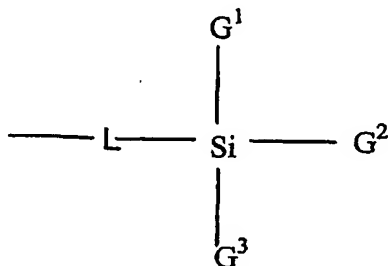
15. A composition as claimed in claim 14 wherein the emulsifying agent comprises a non-ionic surfactant.

16. A composition as claimed in any of claims 12-14 wherein the emulsion is 30 to 99.9%, preferably 40 to 99% of another liquid component, preferably a polar solvent, most preferably water.

17. A composition as claimed in any of claims 2-16 wherein the FPSS is a silicone selected from polydialkyl siloxanes, amine derivatives thereof, and mixtures thereof.

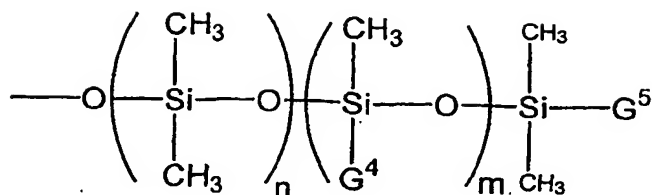
18. A composition as claimed in claim 17, wherein the silicone chain(s) on the substituted polysaccharide have an average degree of substitution of from 0.001 to 0.5, preferably 0.01 to 0.5, more preferably from 0.01 to 0.1, even more preferably from 0.01 to 0.05.

19. A composition as claimed in claim 17, wherein the silicone chain(s) in the substituted polysaccharide is or are independently selected from those of formula:



wherein L is absent or is a linking group and one or two of substituents G^1 - G^3 is a methyl group, the remainder being selected from groups of formula

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the $-\text{Si}(\text{CH}_3)_2\text{O}-$ groups and the $-\text{Si}(\text{CH}_3\text{O})(\text{G}^4)-$ groups being arranged in random or block fashion, but preferably random.

- 10 wherein n is from 5 to 1000, preferably from 10 to 200 and m is from 0 to 100, preferably from 0 to 20, for example from 1 to 20.

G^4 is selected from groups of formula:

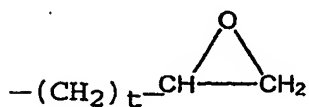
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$-(\text{CH}_2)_p-\text{CH}_3$, where p is from 1 to 18

$-(\text{CH}_2)_q-\text{NH}-(\text{CH}_2)_r-\text{NH}_2$ where q and r are independently from 1 to 3

$-(\text{CH}_2)_s-\text{NH}_2$, where s is from 1 to 3

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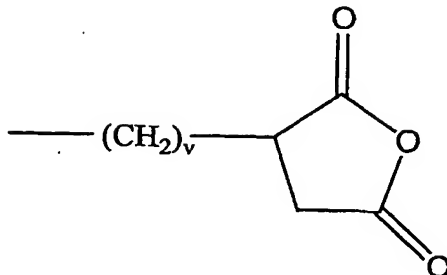


where t is from 1 to 3

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$-(\text{CH}_2)_u-\text{COOH}$, where u is from 1 to 10,

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where v is from 1 to 10, and

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$-(CH_2-CH_2O)_w-(CH_2)_xH$, where w is from 1 to 150, preferably from 10 to 20 and x is from 0 to 10;

and G^5 is independently selected from hydrogen, groups defined above for G^4 , $-OH$, $-CH_3$ and $-C(CH_3)_3$.

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20. A composition as claimed in claim 19, where L is selected from amide linkages, ester linkages, ether linkages, urethane linkages, triazine linkages, carbonate linkages, amine linkages and ester-alkylene linkages.

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21. A laundry treatment composition comprising a composition as claimed in any preceding claim and at least one further component.

22. A laundry treatment composition as claimed in claim 21, wherein the further component comprises a surfactant.

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23. Use of a composition as claimed in any preceding claim to enhance the softening benefit of a laundry treatment composition on a substrate.

5 24. A laundry treatment composition comprising: 1-60%wt of a surfactant, and 0.001-25%wt of an emulsion comprising
10 (a) a water-soluble or dispersible, non-hydrolysable polysaccharide selected from the group consisting of poly-glucan, poly-mannan, gluco-mannan and mixtures thereof, said polysaccharide being covalently linked by
a hydrolytically stable bond to a first polymeric textile softening species, and (b) a second polymeric textile softening species.

15 25. A laundry treatment composition according to claim 24 wherein the first and second polymeric textile softening species are silicones.